

We claim:-

1. A process for the preparation of at least one organic compound by heterogeneously catalyzed partial gas-phase oxidation of at least one organic precursor compound in a reactor loaded with catalyst, in which at least one portion of the components of the reaction gas starting mixture is brought from a low initial pressure to a higher final pressure by means of a compressor, wherein the compressor used is a radial compressor.
2. A process as claimed in claim 1, wherein the at least one portion comprises air.
3. A process as claimed in claim 1, wherein the at least one portion contains at least one chemical compound having at least one ethylenically unsaturated double bond.
4. A process as claimed in claim 3, wherein the at least one chemical compound having at least one ethylenically unsaturated double bond is a member of the group consisting of acrolein, methacrolein, acrylic acid, methacrylic acid, acrylonitrile and methacrylonitrile.
5. A process as claimed in any of claims 1 to 4, wherein the heterogeneously catalyzed partial gas-phase oxidation is the partial oxidation of propylene to acrolein and/or acrylic acid or the partial oxidation of acrolein to acrylic acid.
6. A process as claimed in any of claims 1 to 4, wherein the heterogeneously catalyzed partial gas-phase oxidation is the partial oxidation of propane to acrylic acid.
7. A process as claimed in any of claims 1 to 4, wherein the heterogeneously catalyzed partial gas-phase oxidation is a partial ammoxidation.
8. A process as claimed in any of claims 1 to 7, wherein the at least one portion comprises recycle gas.
9. A process as claimed in any of claims 1 to 5 and 8, which is a heterogeneously catalyzed partial fixed-bed gas-phase oxidation of propene to acrylic acid, taking place in two successive steps, the propene space velocity of the fixed catalyst bed for the first step from propene to acrolein being ≥ 135 l (S.T.P.) per l per h and the acrolein space velocity of the fixed catalyst bed for the second step from acrolein to acrylic acid being ≥ 125 l (S.T.P.) per l per h

16

10. A process as claimed in claim 9, the propene space velocity being ≥ 140 l (S.T.P.) per l per h and the acrolein space velocity being ≥ 130 l (S.T.P.) per l per h.